

Integrating the United States Web Design System and Improving the Accessibility of Code.gov

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Anna Zhang
Yale College '23
Computing and the Arts

code_

IN THE LAW













21st Century IDEA

Requirements: accessible, consistent, authoritative, searchable, secure, user-centered, customizable, mobile-friendly













USWDS 2.0













Code.gov's Own Style Guide








code-gov-front-end

 _main.scss
 base-filter-page.scss
 compliance-dashboard.scss
 fonts.css
 gov-banner.scss
 json-schema.scss
 menu.scss
 overrides.scss
 repo-card.scss
 repo-list.scss
 roadmap.scss
 search.scss



code-gov-style

 _all.scss
 _animations.scss
 _app.scss
 _autocomplete.scss
 _blocks.scss
 _breadcrumbs.scss
 _breaks.scss
 _buttons.scss
 _cards.scss
 _dividers.scss
 _documentation.scss
 _filter.scss

 _filter_tag.scss
 _fontello.scss
 _forms.scss
 _global.scss
 _hamburgers.scss
 _headers.scss
 _iconography.scss
 _inputs.scss
 _layouts.scss
 _links.scss
 _mobile_menu.scss
 _navbars.scss

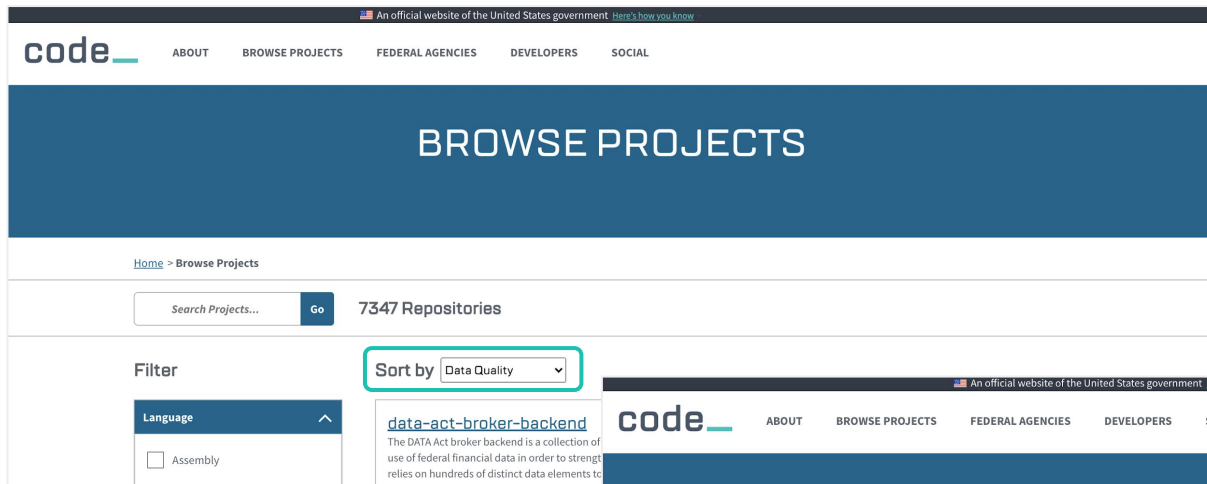
 _popover.scss
 _quotes.scss
 _scroll_indicator.scss
 _shared-layout.scss
 _sidebars.scss
 _typography.scss
 _variables.scss

code-gov-font

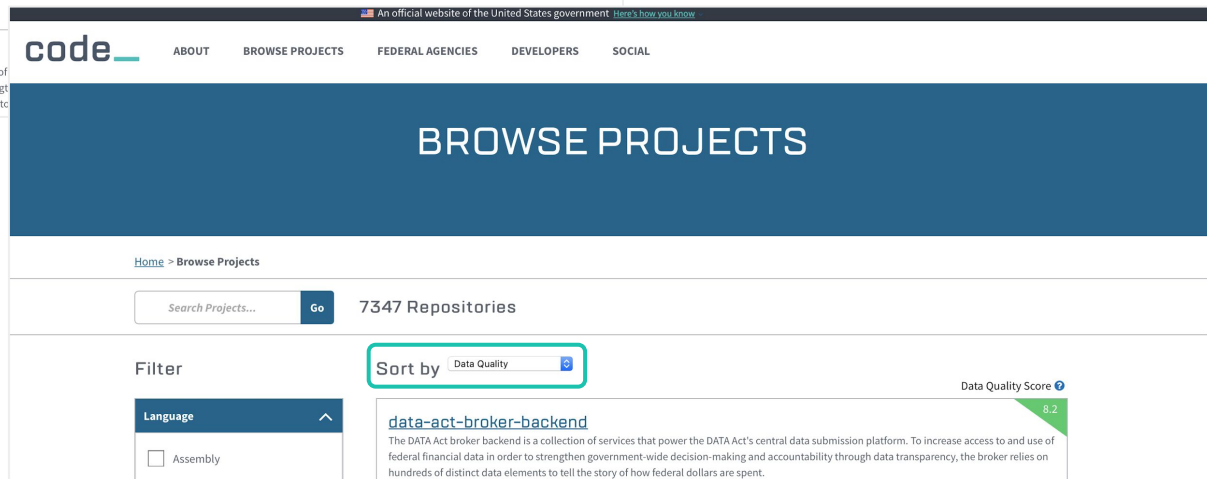
 animation.css
 code-gov-codes.css
 code-gov-embedded.css
 code-gov-font-face.css
 code-gov-ie7-codes.css
 code-gov-ie7.css
 code-gov.css
 code-gov.css-e

United States Web Design System 2.0

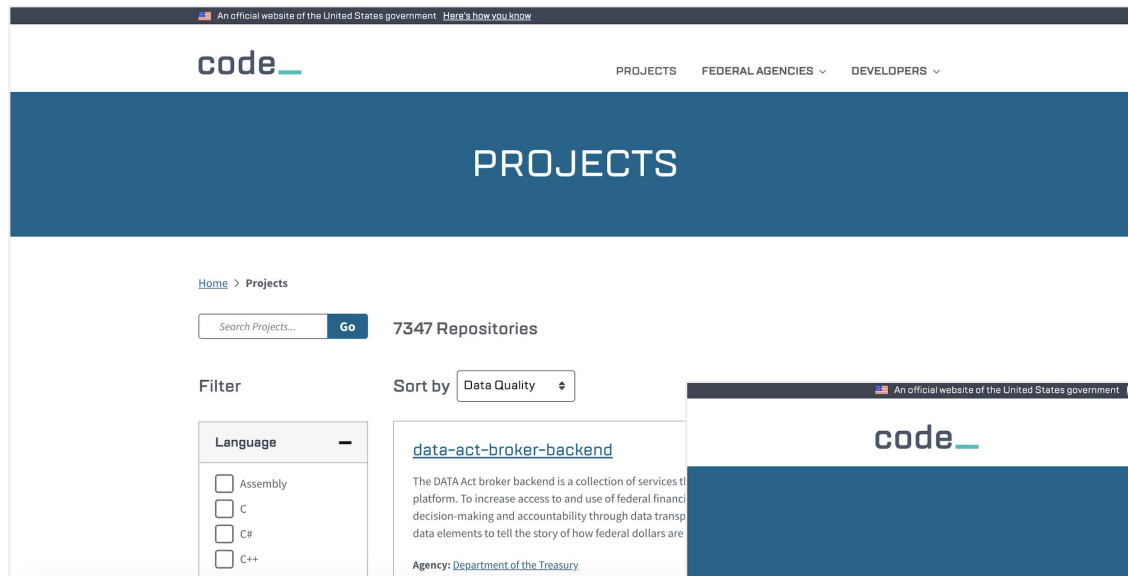
- Use USWDS design tokens and utilities for styling
- Update existing components with equivalent USWDS components



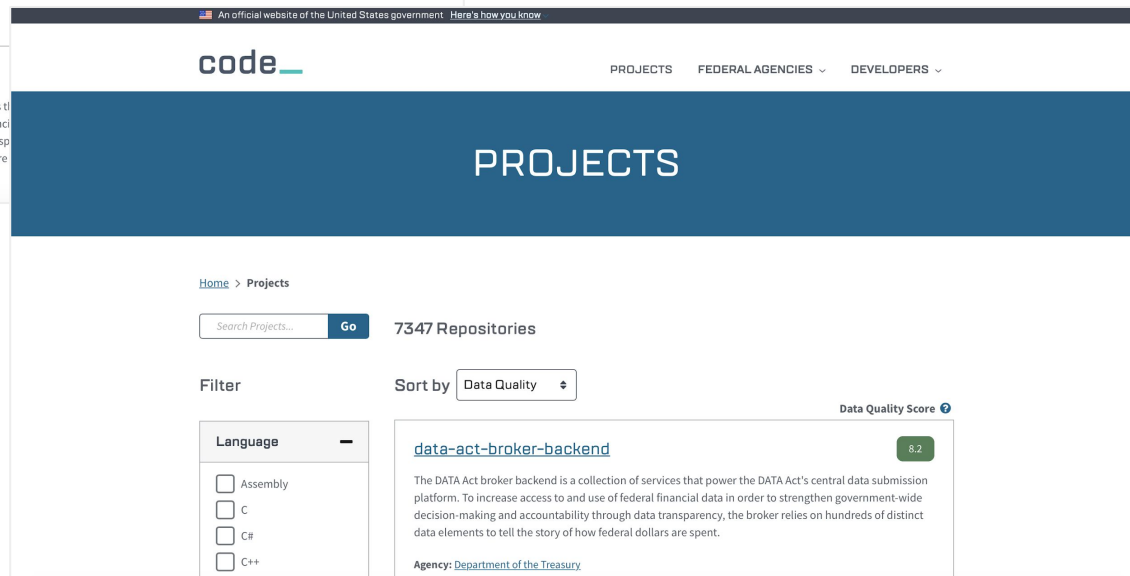
Browse Projects page viewed on Chrome



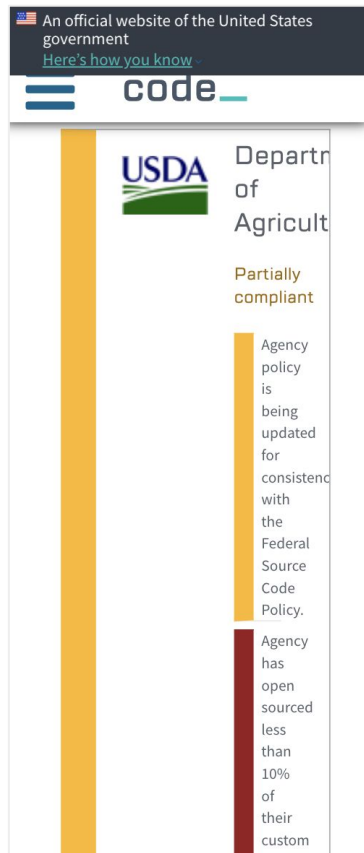
Browse Projects page viewed on Safari



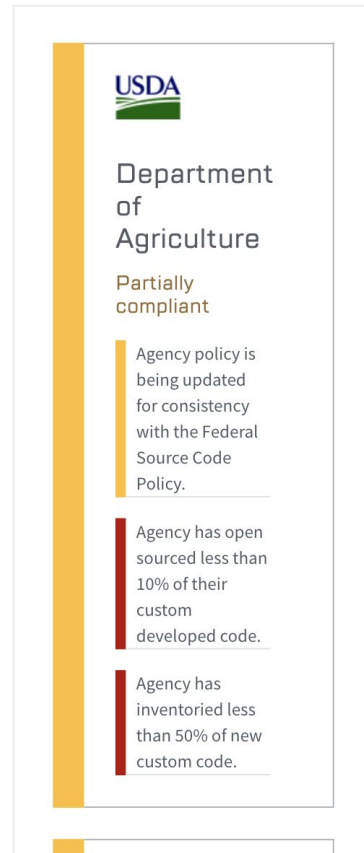
Projects page viewed on Chrome



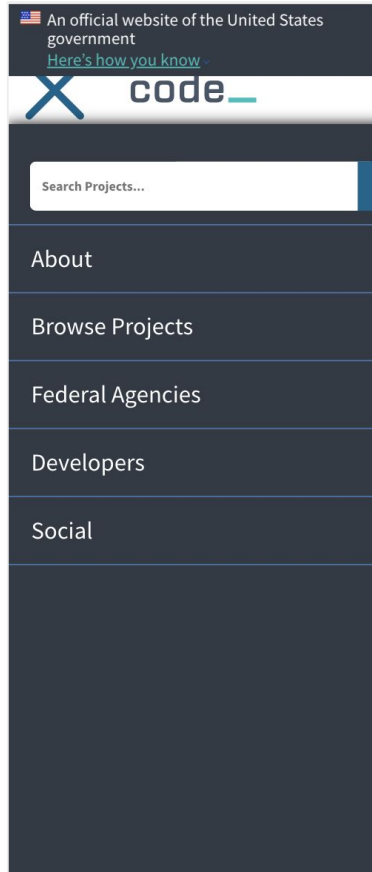
Projects page viewed on Safari



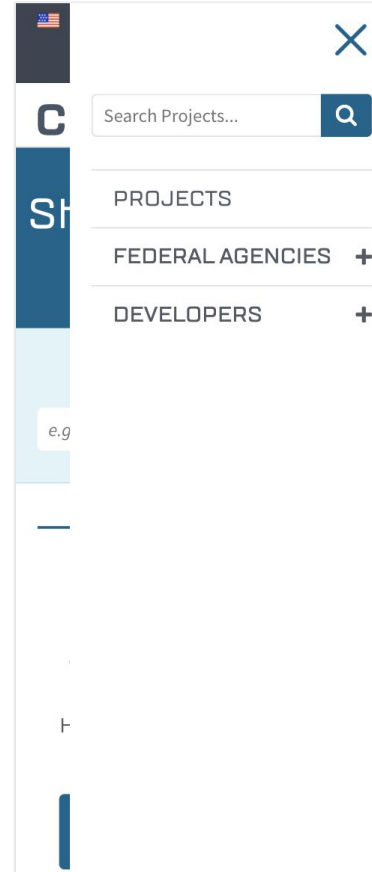
Agency compliance cards on narrow mobile screens (e.g. Galaxy Fold)



More responsive and mobile-friendly agency compliance cards



Buttons for mobile menu cut off
on narrow screens



Responsive and mobile-friendly
menu



Allow only one dropdown at a time to fix main navigation menu bug

United States Web Design System 2.0

- Use USWDS design tokens and utilities for styling
- Update existing components with equivalent USWDS components
- Remove 40+ of Code.gov's custom Sass files
- Update Jest and Cypress tests
- More accessible, consistent, and easier to maintain

Accessibility

**When you design and develop with
accessibility in mind, you create better
experiences for everybody.**

Accessibility


- Automated testing using Pa11y and Lighthouse

Lighthouse

89% → 100% accessibility

Pa11y

11/11 urls passed



Automated testing can help catch many accessibility issues, but it alone cannot determine if a site is accessible.

Accessibility

- Automated testing using Pa11y and Lighthouse
- Manual testing of key user paths
- Results of hybrid testing help pinpoint accessibility barriers

ACCESSIBILITY

Color & Contrast

Insufficient color contrast

[data-act-broker-backend](#)

8.2

The DATA Act broker backend is a collection of services that power the DATA Act's central data submission platform. To increase access to and use of federal financial data in order to strengthen government-wide decision-making and accountability through data transparency, the broker relies on hundreds of distinct data elements to tell the story of how federal dollars are spent.

Agency: [Department of the Treasury](#) **Organization:** Bureau of the Fiscal Service(BFS) **Last Updated:** 6/4/2019

Usage Type: Open Source

Languages: html, css, python

License: Creative Commons Zero v1.0 Universal

Greater color contrast

[data-act-broker-backend](#)

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Usage Type: Open Source

Languages: html, css, python

License: Creative Commons Zero v1.0 Universal

[Go to Repo](#)

Field Name	Data Type	Description
version	string	The version of the metadata schema in use. Implements semantic versioning 2.0.0 rules as defined at http://semver.org
▼ measurementType	object	An object containing description of the open source measurement method.
method	string	<p>An enumerated list of methods for measuring the open source requirement:</p> <ul style="list-style-type: none"> (1) cost: Cost of software development, (2) systems: system certification and accreditation boundaries, (3) projects: A complete software solution / project, (4) modules: A self-contained module from a software solution, (5) linesOfCode: Source lines of code, (6) other: Another measurement method not referenced above

Information about which fields are optional conveyed through the use of red text

name	string	The name of the release.
version	string	The version for this release. For example, '1.0.0'.
organization	string	The organization or component within the agency to which the releases listed belong. For example, '18F' or 'Navy'.
description	string	A one or two sentence description of the release.
▼ permissions	object	An object containing description of the usage/restrictions regarding the release.
▼ licenses	array or null	
URL	string	The URL of the release license, if available. If not, null should be used.
name	string	An abbreviation for the name of the license. For example, 'CC0' or 'MIT'.

Achromatopsia

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Protanopia

Metadata Schema version 2.0.0

The schema fields and definitions are listed below. The schema fields marked in blue are optional but recommended as they provide additional, helpful information. Here is [version 2.0.0 of the metadata schema file in JSON format](#) with parent/child relationships.

Agency code.json file location and contents:

`code.json` must live in the root directory of your agency's website.

`code.json` must include a single object represented as JSON, with key-value pairs according to the list below.

☐ Hide Optional Fields

version string

The version of the metadata schema in use. Implements semantic versioning 2.0.0 rules as defined at <http://semver.org>

measurementType object

An object containing description of the open source measurement method.

method string (optional)

An enumerated list of methods for measuring the open source requirement:

- (1) **cost**: Cost of software development,
- (2) **systems**: system certification and accreditation boundaries,
- (3) **projects**: A complete software solution / project,
- (4) **modules**: A self-contained module from a software solution,
- (5) **linesOfCode**: Source lines of code,
- (6) **other**: Another measurement method not referenced above

Add (optional) text next to optional schema field names

ACCESSIBILITY

Layout & Design



Complex main menu navigation system



PROJECTS

FEDERAL AGENCIES ▾

DEVELOPERS ▾

Sharing America's Code

Unlock the tremendous potential of the Federal Government's software.

Shortened main menu navigation list to help users quickly understand what is available on the site

[Web Policies](#)

[Visit Project Page](#)

[Roadmap](#)



U.S. General Services Administration



[About](#)

[Roadmap](#)

[Privacy Policy](#)



U.S. General Services Administration

code@gsa.gov



Content located in predictable places: About page, social icons, and contact information can be found in the footer

FEDERAL AGENCIES

How to Inventory Code

Compliance Dashboard

ABOUT

[Home](#) > [About](#)

Overview

Introduction

Tracking Progress

Compliance

Agency Compliance

How to Procure Software

How to Inventory

Agency Compliance

Agencies are required to perform various tasks in order to satisfy the objectives of the Federal Source Code Policy. Currently, agencies are evaluated on whether they've completed three tasks:

1. **Updated agency policy:** Agencies must update their policies to be consistent with the Federal Source Code Policy.
2. **Completed code inventory:** Agencies must inventory all new custom code created after August 2016 (notwithstanding

Labels are inconsistent, disjointed navigation menus

FEDERAL AGENCIES

FEDERAL AGENCIES ^

Agency Compliance

How to Procure Software

How to Inventory Code

[Home](#) > **Federal Agencies**

Agency Compliance

How to Procure Software

How to Inventory Code

Agency Compliance

Agencies are required to perform various tasks in order to satisfy the objectives of the Federal Source Code Policy. Currently, agencies are evaluated on whether they've completed three tasks:

1. **Updated agency policy:** Agencies must update their policies to be consistent with the Federal Source Code Policy.
2. **Completed code inventory:** Agencies must inventory all new custom code created after August 2016 (notwithstanding exceptions enumerated in the Federal Source Code Policy).

Updated labels for clarity and consistency

ACCESSIBILITY

Screen Reader

Roadmap

Near-term

- Build out the Federal Source Code Toolkit
- Migration of web components to React components
- Continue enhancing automated testing across site
- SSP annual review and update (for API ATO)

Mid-term

- Complete USWDS 2.0 migration (80% complete)
- Public engagement metrics (Phase 1: Pre-site deployment)
- Explore new site design ideas
- Find new solution for code quality reviews
- Automate sitemap generation

Long-term

- Metadata schema update
- New validator tool w/ new schema
- Agency compliance update (replaces IDC metrics)
- Website search capabilities, integration w/ Search.gov
- Public engagement metrics (Phase 2: Site deployment)

- ✓ Released
- In Progress

aria-hidden="true" with no other text for screen readers

Cannot get the status of the plans in the Roadmap

Roadmap

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✓ Released

● In Progress

aria-label="in progress"

ACCESSIBILITY

Keyboard Access

BROWSE PROJECTS

[Home](#) > Browse Projects

Search Projects...

Go

7347 Repositories

Filter

Language

☐ Assembly

☐ C

☐ C#

Sort by

Data Quality

Data Quality Score ⓘ

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Organization: Bureau of the Fiscal Service(BFS)

Last Updated: 6/4/2019

8.2

Focus is not always visible and does not always appear in logical order.
Not all interactive elements can be triggered using just the keyboard.

Accessibility

- Automated testing using Pa11y and Lighthouse
- Manual testing of key user paths
- Results of hybrid testing help pinpoint accessibility barriers
- Improve keyboard accessibility, color contrast, layout and design, and screen reader accessibility

Thank You!

Code.gov

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Amin Mehr

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Nikki Williams

Karen Trebon

GSA

Hilary Lutz

Annabel Lombard

Patricia Cheng

Coding It Forward

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Chris Kuang

Ariana Soto

Christine Jou

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Irene Kim